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EXAMINER

TUPPER, ROBERT S

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Paper No. 13

Application Number: 09/933,508
Filing Date: August 20, 2001
Appellant(s): CHEN ET AL.

Mark Lauer
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 2/27/04.

(1) Real Party in Interest

Art Unit: 2652

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is incorrect. A correct statement of the status of the claims is as follows:

This appeal involves claims 1, 4-9, 12-19, and 21-24. The amendment after final (paper no.9 filed 2/5/04) incorrectly summarized the claims being canceled. The clean copy of the claims shows claim 20 being canceled, not claim 19.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is incorrect. The amendment after final filed 2/5/04 has been entered, however, as noted above, it canceled claim 20, not claim 19.

(5) *Summary of Invention*

The summary of invention contained in the brief is correct.

(6) *Issues*

The appellant's statement of the issues in the brief is correct.

(7) *Grouping of Claims*

Art Unit: 2652

The appellant's statement in the brief that certain claims do not stand or fall together is not agreed with because no reasons have been presented to support the statement.

(8) *Claims Appealed*

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) *Prior Art of Record*

6,504,675	SHUKH et al	1-2003
6,513,228	KHIZROEV et al	2-2003

(10) *Grounds of Rejection*

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1, 4-9, 12-19, and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over SHUKH et al (6,504,675).

Note figures 1, 2, and 6. SHUKH et al shows a perpendicular magnetic recording head (10) having a first soft magnetic return layer/pole (21) and a second soft magnetic write layer/pole (12 in figure 1 and 22 in figure 6) which is magnetically coupled to the return pole through a third member (not numbered - see core portion projecting through the coil 14 in figure 2). The second write layer/pole (22) has a trapezoidal shape (see figure 6). The head is used in a disk drive system with an actuator that moves the head between plural tracks (see figure 1). The head is used with a conventional perpendicular recording medium having two layers (see figure 2 and column 1 lines 30-33).

SHUKH et al differs in not specifying the dimensions listed in claims 1, 9, and 17.

Art Unit: 2652

It would have been obvious to one of ordinary skill in the art at the time the invention was made to configure the head of SHUKH et al to have the listed dimensions. The motivation is as follows: these would have been the obvious result of routine experimentation and optimization. One of ordinary skill in the art would routinely experiment and optimize where no dimensions were stated.

Claims 13 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over SHUKH et al (6,504,675) in view of KHIZROEV et al (6,513,228).

SHUKH et al shows a perpendicular recording head substantially as claimed.

SHUKH et al differs in not showing a read head.

It is well known to combine read and write heads in one head structure.

KHIZROEV et al shows a combined perpendicular write and MR read head.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide an attached MR read head on the write head of SHUKH et al as shown by KHIZROEV et al. The motivation is as follows: this is a well known and common combination. One of ordinary skill in the art would utilize such a known configuration where none was specified.

(11) Response to Argument

Concerning the 103 rejection over SHUKH et al, Appellant argues that SHUKH et al provides the trapezoidal shape for the write pole only at the air bearing surface.

Art Unit: 2652

This is a totally strained reading of the SHUKH et al disclosure. No reasonable reading of the entire SHUKH et al disclosure would come to such a conclusion. Note in the SUMMARY OF THE INVENTION section (see column 2 lines 11-20) that two of the "aspects of the invention" refer to "the write pole". Further, in the detailed description section (see column 3 lines 56-58) the write pole is stated to have a trapezoidal shape.

These portions of the disclosure clearly refer to the write pole in its entirety, not merely its end portion.

Appellant's arguments concerning how the structure of SHUKH et al is fabricated are off point. The claims on appeal are head structure claims. However, this line of argument does bring to mind the question of how one would make a write pole with a trapezoidal shape only at the air bearing surface as Appellant urges for SHUKH et al. How would there be no projection of that shape vertically? Such an interpretation makes no sense.

Concerning the 1 micron recitation, SHUKH et al does not specify a dimension for the vertical height of the write pole. However, SHUKH et al does specify a dimension for the write pole width (TPW) and length (TPL) (see figure 6 and column 4 lines 3-7). These are stated to be 10-2500 nm and 5-500 nm. Assuming figure 2 to have any sort of proportion, the vertical height of the write pole would be in excess of 1 micron. Certainly one of ordinary skill in the art would have to routinely experiment and optimize the height of the write pole where no height was specified, and the listed 1 micron would be satisfied in view of the dimensions specified for the write pole width and length.

Art Unit: 2652

Concerning claims 6 and 14, Appellant argues that SHUKH et al does not show a third layer/member magnetically coupling the write and return poles. This is in error. As shown in figure 2, the portion (not numbered) of the head that projects through the center of the coil (14) reads on these recitations.

Concerning claims 7, 15, and 22, Appellant argues that SHUKH et al does not show the medium to have a layer with an easy axis of magnetization substantially perpendicular to the media facing surface of the head. This also is in error. Note figure 2 and column 1 lines 30-33, SHUKH et al states and shows the medium to be the conventional two layer perpendicular recording medium. Appellant's own description of the prior art (see page 2 lines 8-18 and Prior Art figure 2) acknowledges that the conventional perpendicular recording medium has a layer with an easy axis of magnetization substantially perpendicular to the media facing surface of the head.

Concerning the 103 rejection over SHUKH et al in view of KHIZROEV et al, Appellant only argues that KHIZROEV et al does not show the trapezoidal shape. This is off point. KHIZROEV et al is relied upon for showing the well known combination of perpendicular write and MR read heads in one head structure.

For the above reasons, it is believed that the rejections should be sustained.

Art Unit: 2652

Respectfully submitted,

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Primary Examiner
Art Unit 2652



rst

April 1, 2004

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